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MILK AND BABY HYGIENE ASSOCIATION  
OF BOSTON, MASSACHUSETTS



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# AN ACCOUNT

BY THE  
Milk and Baby Hygiene Association  
To March 1, 1910

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## THE ASSOCIATION'S PURPOSE:

- To improve the milk supply.
- To prevent sickness and reduce mortality among infants.
- To increase the health and vitality of children and their mothers.

## METHODS:

- Encouragement of breast feeding.
- Distribution of clean milk.
- Maintenance of a first-class milk modification laboratory.
- Maintenance of milk stations in the neediest districts.
- Instruction of high-school girls, mothers and fathers in the care of children.
- Supervision of the care and feeding of babies by skilled physicians and nurses at home and at the stations.
- Conferences, lectures, exhibits, and publications for milk consumers.
- Co-operation with public health authorities.
- We propose researches in bacteriology, bio-chemistry, and sociology with reference to infant mortality.

64A TYLER STREET, BOSTON, MASS. PRICE, 15c.



Consultation on nourishment and care of infants. The nurse is weighing a particularly unfortunate child, which, with good care, should soon look as well as the baby at the extreme left.

---

"All who practice medicine among children and who study the question of infant mortality statistically are struck with the marked contrast between the death rate of the children of the poor and those of the rich. Clay estimates that in England in the aristocratic families the mortality of the first year is 10 per cent; in the middle class, 21 per cent; in the laboring classes, 32 per cent. This difference in the infant mortality of the various classes is most striking in the case of acute intestinal disease. Halle states that of 170 deaths from this cause investigated in Graz in 1903 and 1904 there were 161 among the poor, 9 among the well-to-do, and none among the rich. It may not be true in adult life, but *in infancy money may purchase not only health, it may purchase life*, since it puts at the disposal of the infant the utmost resources of science, the best advice, the best food and the best surroundings for the individual child. To relieve, or even greatly to diminish, infant mortality these basal conditions of modern city life — poverty and ignorance must be attacked."

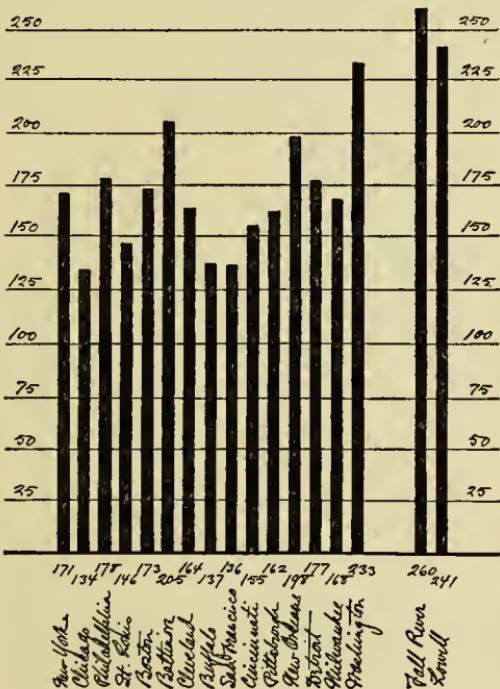
DR. L. EMMETT HOLT,  
*Journal American Medical Association.*

Feb. 26, 1910.

*"The milk dispensary was called into existence in consequence of a recognition that bad milk and bad hygiene are responsible for excessive infant mortality among the families of the poor."*

—ASSISTANT SURGEON-GENERAL KERR,  
Public Health and Marine Hospital Service.

**A**LARGER proportion of babies die in Boston before they are one year old than in New York or in Chicago; than in Pittsburg or San Francisco; than in St. Louis or Cleveland, Milwaukee, Cincinnati or Buffalo.\* Boston does not permit the death of as many out of each 100 as Fall River, whose married women are in its industries and whose mothers, at the mercy of machinery, lost 260 of every 1,000 babies born to them in 1900 and 380 in 1908.† More died in Lowell, also, than in Boston for the same economic reasons; Philadelphia,



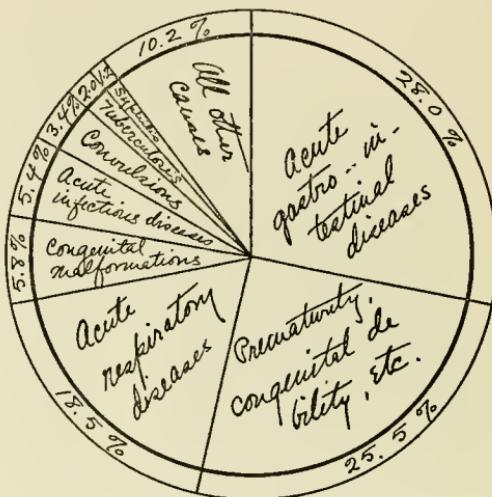
\*1 Census, 1900.

†Mortality Statistics, 1908; U. S. Census Bulletin 104, page 16.

**PICTURE  
2124  
LITTLE  
WHITE  
COFFINS  
USED IN  
BOSTON  
LAST  
YEAR**

Baltimore and New Orleans sacrifice a few more than Boston does. They can offer in excuse that they have large and segregated populations of negroes, but what have we to say in extenuation of the astounding fact that 173 of each 1,000 of our babies were buried in 1900, as against 134 in Chicago or 137 in Buffalo? What excuses can we offer in the face of this truth? Today in the city limits a newborn child has less chance of living for a week than has the citizen ninety years old; it has less chance of living through the year than has a man of eighty.\*

Is this in the "nature of things" like the biological law of the lower life forms, according to which a high ratio of births is provided to overcome the death ratios? If it is not—and civilized people no longer believe that it is—is this mortality capable of an analysis which will determine even roughly how many of these deaths are preventable? Yes; for the causes of the deaths are known, and the means of overcoming them are now in the hands of sanitarians. Here are the causes in a composite picture of the deaths of 44,226 babies under one year in Boston, New York, Philadelphia and Chicago, prepared by Dr. L. Emmett Holt, in 1909, for a lecture at Columbia University.



The number of preventable deaths in infancy and early childhood has been worked out by Prof. Irving Fisher, on the basis of independent medical opinions; he defines the "ratio of pre-

\*Newman: Infant Mortality.

ventability," as "the fraction of all deaths which would be avoided if knowledge now existing among well-informed men of the medical profession were actually applied in a reasonable way and to a reasonable extent."\* That is, if Boston exercised the same degree of reasonable care in protecting the lives of its babies under five that is indicated by the law as "reasonable care" in preventing railroad accidents we could save: \* 60 of each 100 babies who die of the gastro-intestinal diseases (which are the greatest source of their mortality), 70 of venereal diseases, 40 of congenital debility, 40 of premature birth,

LACK OF  
REASON-  
ABLE  
CARE

\*Report on National Vitality to the National Conservation Commission, 1909, page 114.

General	Still Births	
	Whooping Cough	—
	Diph. or Croup	—
	Erysipelas	—
	Tuberculosis	—
	Other General	—
Nervous	Total	—
	Meningitis	—
	Convulsions	—
	Other Nervous	—
	Total	—
Respiratory	Total Ciro.	—
	Bronchitis	—
	Bron.-Pneu.	—
	Pneumonia	—
	Total	—
Digestive	Stomach	—
	Diarrhoea	—
	Other Diges.	—
	Total	—
	Malformations.	—
	Early Infancy	—
External Causes	External Causes	—
	Misc. or Ill-defined	—

Proportions of infant deaths due to various causes in Boston, 1909.

50 of broncho-pneumonia, 70 of diphtheria, 50 of scarlet fever, 70 of meningitis, 75 of "croup," most fatal cases of which are in reality diphtheria.

Here, in what Dr. Cressy L. Wilbur calls "the brute force of the figures," is shown the need of an organized vigilance and its instruments, which shall be as intelligent as the vigilance and as available as the instruments that prevent steamship accidents,

CHIEF CAUSES OF DEATH FIRST YEAR	
ACUTE GASTRO INTESTINAL	28.0 Per Cent
MARASMUS, PREMATURITY, ETC.	25.5 , ,
ACUTE RESPIRATORY	18.5 , ,
CONGENITAL MALFORMATION ETC	5.8 , ,
ACUTE INFECTIOUS	5.4 , ,
CONVULSIONS	3.4 , ,
TUBERCULOSIS	2.0 , ,
SYPHILIS	1.2 , ,
ALL OTHERS	10.2 , ,

the burning down of cities, and the decimation of a region by smallpox. But, "in the light of the figures quoted above, it would seem that practical sanitation has only made a beginning in the work of preventing the occurrence of infant and child mortality. The ground has only been scratched over. Deep stirring of the soil and thorough cultivation of all of the means available, with our present scientific and medical knowledge for the guarding of young human lives, would produce startling, and from all past human experience almost unbelievable, results. . . . It does not seem unreasonable, when we consider the fact that there is apparently no reason why infants, if *properly born* (and this means simply the prevention of antenatal disease and the improvement of the health and conditions of their parents) should die at all in early infancy or childhood, except from the comparatively small proportion of accidents that are strictly unavoidable."\*

ALL  
PREVENT-  
ABLE

\*Mortality Statistics, 1908; U. S. Census Bulletin 104, page 9.

In this contrast between what was happening in Boston and what ought to be happening there was found the stimulus that organized the Association and the motive power that pushed it forward.

### MANY CURES — FEW PREVENTIONS

The ways of preventing disease are positive and clear, those of curing it devious and uncertain, and this is especially true when dealing with puny infants limited in power of self-expression and of low vitality and resistance. Yet we have in Boston six hospitals with especial facilities for sick babies, and twenty-four hospitals which take them for one cause or another. In addition, there are dispensaries, two diet kitchens and the Milk Fund for Sick Babies.

What organized effort prevented sickness and need of hospitals and of special diet prior to the organization of the Milk and Baby Hygiene Committee? We know of none. Appreciating these conditions and the concrete difficulties of individual mothers and fathers, Mr. and Mrs. Charles F. Whiting, in the winter of 1905, sought the advice of Dr. Charles W. Townsend, Dr. John L. Morse, Dr. Walter B. Cannon, Dr. Ralph C. Larrabee, Prof. W. T. Sedgwick and others as to the practicability and desirability of establishing a "poor people's" modified milk service. They presented a plan for providing standard modifications for babies of different ages, to be sent to day nurseries, settlements and other social centers for distribution at cost. The plan was warmly approved by all the persons mentioned and by the neighborhood centers, without whose coöperation the movement must have failed. The Tyler Street Day Nursery offered to conduct the first station. It was an immediate success and was soon followed by others at Peabody House in the West End, the North End Union on Parmenter Street and South Bay Union. Later, stations were started at Downey's Drug Store in Charlestown and Woodbury's Drug Store in East Boston, and the Tyler Street station was moved across from the Nursery to Denison House. These stations were carried on successfully, meeting an increasing demand, until in June, 1907, a "COMMITTEE ON MODIFIED MILK STATIONS" was formed to take control. The Committee contracted for a milk supply

SOCIAL  
SETTLE-  
MENTS  
TAKE  
PART

FORMAL  
ORGAN-  
IZATION

from farms under inspection by its medical members, and the latter also regulated the sanitary conditions in the laboratory and reviewed the formulas.

During the year following, certain tendencies became evident which indicated the desirability of organic changes. The manner in which the milk was distributed did not prevent mothers from weaning their babies and putting them on the Committee's convenient supply. In short, the Committee was to some extent unintentionally discouraging nursing.

Mr. Whiting recommended in January, 1909, a more substantial and better directed organization, with model milk stations where whole as well as modified milk could be sold, and where "consultations on nourishment and care of babies" after the plan of Budin of Paris, could be held; or the abandonment of the stations and delivery of the modified milk directly to patients' houses, upon prescription of physicians only. The former would be an extension and perfection of the plan in operation — the latter a repetition of the Walker-Gordon plan. A committee of three was appointed to bring in recommendations.

This Committee recommended the appointment of a social worker to study the situation, plan and direct improvements and extend the work. It also recommended: (a) Reconsideration of the formulas in use. (b) Consideration of pint and quart distribution of modified milk. (c) Increasing range of quantities of each formula put up in feeding bottles to meet the exact need of each child. (d) Scale of prices according to the quantity and cost of preparation. (e) Consultations on nourishment and care of babies at each station weekly, attendance to be required of each modified milk customer. (f) Appointment of a Medical Director to have charge of these consultations. (g) Establishment of a uniform system of operation and records and close coöperation with physicians.

#### THE COMMITTEE ON MILK AND BABY HYGIENE.

The first recommendation was accepted in order that the others might be. The name of the committee was changed to make it descriptive of the broader purposes: of improving the general milk supply; teaching infant hygiene and the importance of breast

feeding; and continuing to furnish milk properly modified for babies. In addition it was voted that a graduate nurse be placed in charge of each station. On May 10, 1909, the Director began the work, on a part time basis, until relieved of the responsibilities of the Tuberculosis Association. On June 22, the Medical Director assumed control over all matters of hygiene, and the organization of the consultations. Recommendations *a, b, f* and *g* had by this time become operative, and *e* was fully instituted within two weeks; *c* and *d* were instituted August 15 and met with general approval. In spite of the best calculations as to the increased tax of *c* and *d* on the laboratory staff and equipment, these proved inadequate to meet it, and with regret they were suspended ten days later. Since then the units and apparatus have been perfected and have been purchased as fast as our financial situation would permit. A bottle-filling machine, costing \$350.00, would save at least \$12.00 a week on the cost of preparing the milk and eliminate the sanitary danger of hand work. Here is a concrete opportunity for a most useful gift.

TRAINED  
LEADER-  
SHIP

THE  
MACHINE  
BROKE

AN  
OPPOR-  
TUNITY

HOME DE-  
LIVERIES

NEW  
HEAD-  
QUARTERS

RELATIVE  
VALUES  
OF CERTI-  
FIED AND  
INSPECT-  
ED MILK

10  
STATIONS

In September the Committee voted to extend "*b*" so that persons living outside of station districts may have our milk delivered at their homes on physicians' prescriptions, which must be renewed monthly.

In October the Tyler Street Day Nursery very generously provided us excellent free rooms, both for offices and for the central or Denison House station.

In November we finished an experiment to determine whether two groups of families of the same stock, habits and location would show any marked difference in health if one were nourished on Certified milk and the other on the Inspected grade. As an inducement the price was made the same for both. While the experiment was not extensive enough to be conclusive it showed the substantial equality of value of the two.

Besides the stations opened early in our history, others at Roxbury Neighborhood House, Cambridgeport Neighborhood House and Lincoln House had been established. Through the generous coöperation of the School Board and the Public Buildings Department, respectively, the Charlestown and East Boston Stations were moved to the Charlestown High School and the old Armory Ward Room. The overgrowth of the North

End Union Station made a division necessary, and by courtesy of the Public Library Trustees a station was opened in the Branch on North Street. When this was closed the new station was sheltered in an admirable room in St. John's School by Father Knapp and St. Stephen's Parish. This has since been completely renovated and made "Model" by Mrs. James P. Magenis, as a memorial to her uncle and aunt, Mr. and Mrs. Eugene Lynch.

### OUR EVER-WIDENING CIRCLES OF INFLUENCE

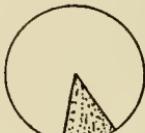
Number of babies under our care and their nourishment

January, 1908



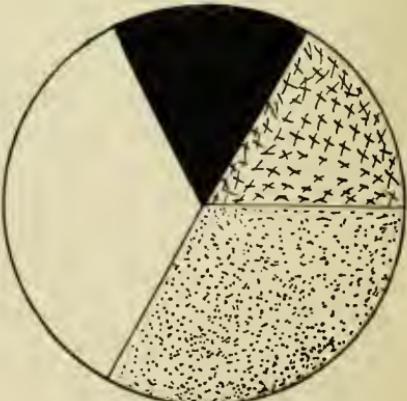
Diam. 172  
Babies

January, 1909



Diam. 218  
Babies

January, 1910

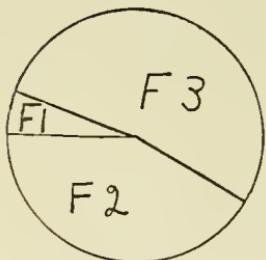


Diam. 774 Babies.

XXXXXX, Exclusively Breast Fed  
Dotted Area, Mixed Breast and Bottle  
White Area, Exclusively Bottle Fed  
Black Area, Whole milk sold to mothers  
for their own use, for home  
modification and for children  
too old for modified milk.

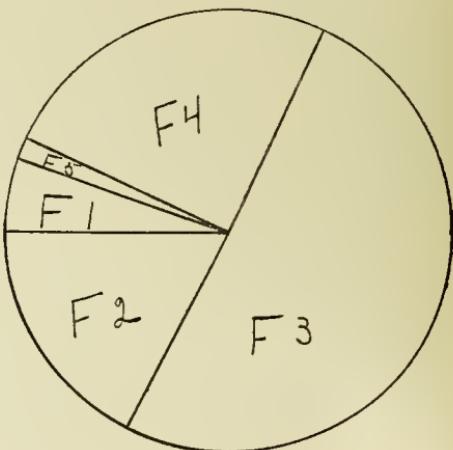
### AMOUNT OF MILK DISTRIBUTED BY FORMULAS

July 1 - Dec. 31, 1908



Diam. 1,402,794 oz.

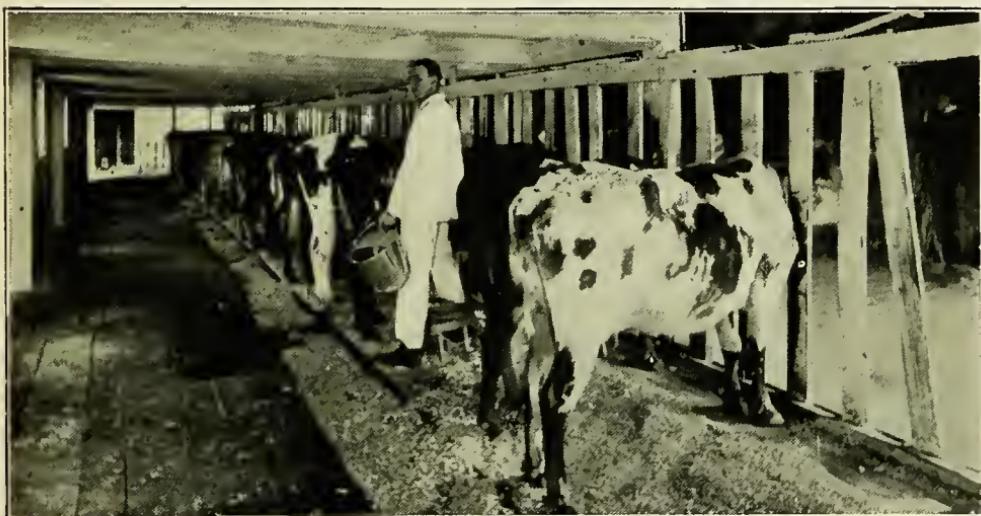
July 1 - Dec. 31, 1909



Diam. 2,577,818 oz.



Stall-way of one of the farmers supplying the Association milk, just before the cows enter. This room is kept sweet and clean, and produces milk normally under 50,000, usually under 25,000, and frequently under 500 bacteria per cubic centimeter. Room is whitewashed every two weeks, or oftener if necessary. Shavings used for bedding. Trough for manure, with drop-doors carrying it to the tanks below. This keeps under part of barn sweet and clean, and saves the manure for fertilizer, and prevents the breeding of flies.



Ready to milk. The Chute milk-pail. This pail greatly lessens the chance of milk contamination from the dust on the cow. Cows tuberculin tested twice a year. Note all cattle standing. After they are fed grain, neck chains are fastened across in order to prevent lying down. They are then brushed down, and their udders wiped with a clean, wet towel. The farmer then washes his hands, and puts on his clean milking uniform. As each pailful is milked, it is taken to the strainer, from which it flows through a tube to the cooler in the next compartment.



## MILK AND BABY HYGIENE ASSOCIATION.

At the December meeting of the General Committee it was voted that the time had come for the incorporation and reorganization of the Committee on a permanent basis. At the meeting of January 31, 1910, the Executive Committee submitted a constitution under the above title, by-laws and a slate, which were approved in the form shown in the appendix. Mr. George H. Ellis, trustee of the Massachusetts Agricultural College and owner of one of the largest and best dairies in New England, was elected President; Dr. Milton J. Rosenau, Professor of Preventive Medicine at Harvard Medical School and international authority on the subject of public milk supplies, Mrs. Charlotte Barrell Ware, founder of Warelands Certified Dairy, and Mr. Horatio A. Lamb, dairy economist, were elected vice-presidents; and the other officers of the committee succeeded to similar positions in the Association, which was incorporated March 7, 1910.

### THE MILK.

The Association has contracted with the firm of D. Whiting & Sons to continue to supply any desired quantities of Inspected and Certified milk,\* to rent the Association laboratory space, together with light, ice, heat, power and water, and to collect and deliver bottles to our ten stations according to the contract shown in the appendix.

WHERE  
WE GET  
IT

### THE PRICE OF THE MILK, BOTTLES AND NIPPLES.

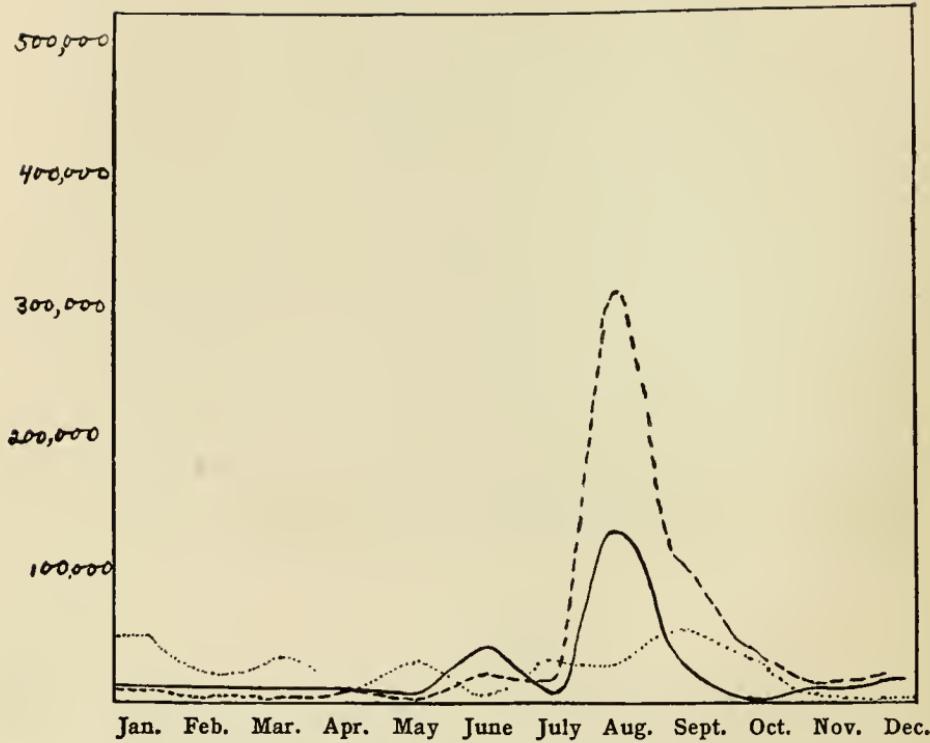
The price of the milk is regulated as closely as possible by the cost. For any quantity up to six ounces the price is two cents per bottle, for seven or eight ounces two and one-half cents, of any formula. The cost of modification, and of handling and sterilizing the bottles is the largest factor in the minor quantities. Any one of the formulas can be had in pint bottles at the rate of four and one-half cents, or at nine cents per quart. The poorest of the mothers, wishing to obtain small feedings of formulas 1 or 2,

PRICE  
IS COST

ONE  
PRICE TO  
ALL

WAY TO  
ECONOMY

\*Certified milk must be drawn from cows that are free from tuberculosis; must not contain more than ten thousand bacteria per cubic centimeter; and must be produced under conditions which meet the approval, on regular inspection, of the Milk Commission of the County Medical Society. Inspected milk differs only in that the bacterial count may be as high as fifty thousand per c. c.



Legal Maximum, 500,000 bacteria per cubic centimeter.

Average by months of all bacterial counts for the three farms from which our Inspected milk is taken. At least six tests or counts made per month. All the cattle are tested twice yearly for tuberculosis until it is eliminated.

Conrad Farm, dash line.      Chute Farm, solid line.      Peters Farm, dotted line.

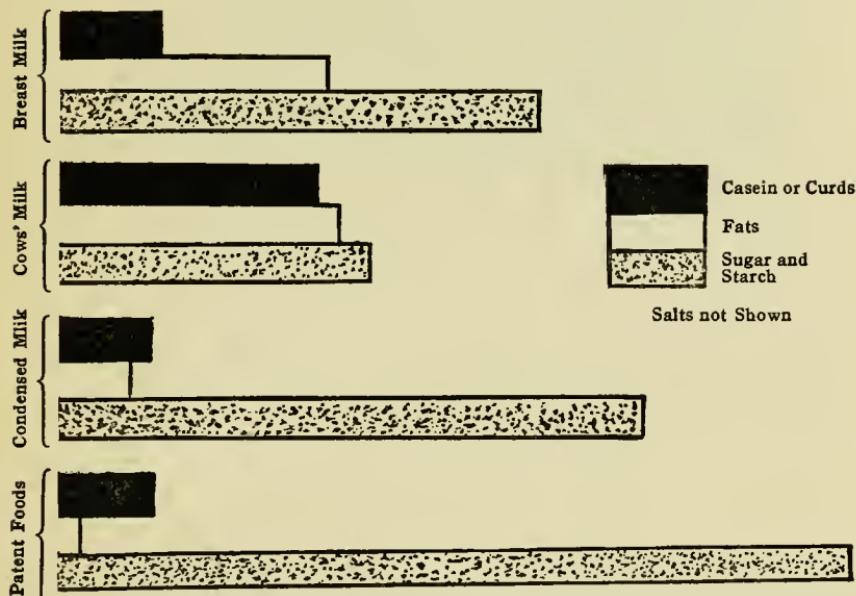
#### OTHER SUPPLIES

would find a distinct economic advantage in purchasing a pint of modified milk and decanting it into the feeding bottles. Graduated bottles are furnished at an original cost of two cents each. All of the stations also carry supplies of first-class nipples such as are sold at retail stores for from five to ten cents each. These we are able to sell at the rate of two for five cents. Our formula 4 is a whole and natural milk of an unusually high grade. It is sold in feeding bottles, and at nine cents per quart for the benefit of pregnant or nursing mothers, mothers wishing to modify milk at home and for children too old for formula 3. It is also especially desirable for invalids and convalescents. This milk is Inspected milk from healthy, non-tubercular cows, and handled under sanitary and hygienic conditions specified in the contract.

The charges are fixed at cost because we wish to have this part

of our work taken over by the city as a self-sustaining enterprise, through which every one may have as a civic right what we now provide as broadly as our means permit. By this system mothers obtain for from nine cents to sixteen cents a special infants' milk similar to that sold commercially for from twenty-five cents to forty-five cents a quart. In respect to cost, the milk distribution differs radically from the nursing and consultation work and other activities of the Association, which are of an educational or benevolent character and are not expected to pay their own way.

$\frac{2}{3}$   
SAVED



Why cows' milk must be modified for babies. Proportionate components

### THE GENERAL MILK SUPPLY.

Boston is exceptionally fortunate in the high average quality of its milk supply. It has probably the best of all large cities. This is due to the wisdom, energy and thoroughness of the city and the state boards of health, to the concentration of a large proportion of the supply in the hands of old established firms having a consistent business policy of improving the milk and methods of handling it, and to the intelligent, hard work of the better element among the producers. Consumers have had little to do with it. They congratulate themselves upon buying milk for one or two cents less than the established price of nine

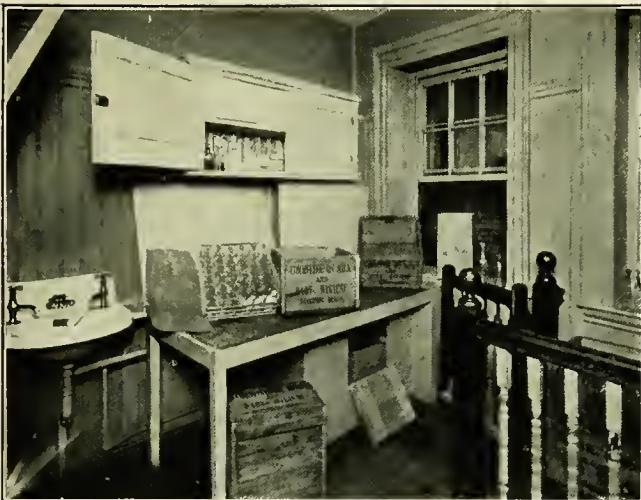
BEST OF  
ALL

cents; they rarely ascertain its quality by test, and if the children fall sick they are not likely to search for the cause in this poor "bargain" milk. Supplies which have been "inspected" or "certified" by the medical milk commissions can be obtained for ten and fifteen cents respectively (at the Milk and Baby Hygiene Association's stations for nine and twelve cents), but the supply of 10,580 quarts of Inspected and 1,032 of Certified milk overstock the market! Seventy per cent, or 175,000 quarts of the general (nine cent) supply, is of very good quality and yet the consumer looks to the bill board advertisement rather than to the municipal health report for guidance. Condensed milk, a denatured, and for babies, at least, an unwholesome product, frequently manufactured from the tag end of the supply, increases its sale rapidly while the consumption of fresh milk is stationary. Some day the label must tell the full truth as to the per cent of fat which would remain if the contents were diluted as directed, and then the consumer will know that he pays more than the price of Inspected milk for a can containing less than the legal standard. The consumer of skimmed milk (which sells at five cents a quart) is obtaining better food value for his nickel than is the consumer of a ten cent can of condensed "milk."

### THE EVIL OF LOOSE MILK

Another grave evil of the present milk situation is about to be remedied here, as it has been in Fall River, Portland, Chicago and other places; the Board of Health has published a regulation prohibiting the sale of loose milk, that is, milk poured from a large can into the purchaser's pitcher, pail, beer bottle or bowl. The full enforcement of this regulation has been twice postponed, but ample time for preparation to comply has now been allowed to all parties and no excuse will remain for its non-enforcement after May 1. After that, all milk should be delivered in sealed milk bottles except in the wholesale trade. It is to be hoped that consumers will learn that the bottle is cleaner than utensils they wash and handle, and that the milk should be left in it and kept with the cap on until used.

It is claimed by opposing dealers that the bottling regulation will increase the price of milk to the poor. The price of the



Milk distributing station at Peabody House, showing complete equipment, from wash-stand to railing behind which people stand in line, entering at special side door through alley shown through open window. On sill, see pint and quart bottles, in which packages both whole milk of the same inspected grade from which the Committee's modified milk and the Committee's modifications are put up. Beside these bottles stands one of the heavy jute paper bags, in which people carry milk and ice to their homes. Next are two of the Committee's special milk shipping boxes, made watertight by galvanized iron lining, which is not fastened in, but which can be taken out readily for sterilizing, if necessary. Next, one of the Committee's metal baskets containing 36 infants' feeding bottles. One 8-, one 6- and one 4-ounce bottle of modified milk in line, showing method of stopping with a plug of absorbent cotton. Sufficient cotton plugged in, so that the bottle can be lifted by the cotton without danger. This prevents infiltration of water from ice or the leaking of the milk. All stand on the waterproof draining table. Above, cabinet, showing dressings, etc.



Consultation on nourishment and care of infants. The nurse is about to demonstrate method of preparing barley-water. After teaching a group of mothers, she visits them at their homes and watches them carry out the lessons learned, giving additional instruction where necessary. Note three mothers nursing their babies. All are encouraged to do so, as far as they are able. Eighty mothers during the last three months have been persuaded to entirely nurse babies which they had begun to wean.



Doctor obtaining child's temperature and pulse. This baby was brought into the station almost dead. Nurse made two or three visits daily; doctor saw baby nearly every day, and by heroic work they succeeded in saving it and restoring it to health. This picture shows the baby after six months, above normal weight and in fine condition.



Milk-room, showing cooler and ice-chest. Note the Chute pail, two-thirds covered. With this pail there is only one-fourth the bacterial count of an open pail under the same conditions. All windows are provided with screens, and doors with springs, to keep the room free from flies and dust. Milk produced in this manner is normally under 50,000 count, and frequently under 500. Milk on the ordinary farm usually runs from 200,000 to 5,000,000 bacterial count per cubic centimetre.

cheapest unskimmed milk sold in Boston stores is six cents in summer and seven cents in winter. The grocer sells it at cost, or less, as he does sugar, to advertise and attract trade. He frequently mixes one day's surplus with the supply of the next, so leveling it all down and keeping the sediment and cultures continuously at work. He has no proper cooling place; the milk is exposed to dust and flies; he goes from the potato barrel to the milk can; he is hurried. It is plain that *low priced* milk from such conditions is no cheaper than a clean bottle of it at one cent more. The poor person who has not seven or eight cents for a quart of bottled milk will be better off with a five cent quart bottle of good skim milk than with a loose quart of the average grocer's supply.

#### SCIENTIFIC CARE OF BABIES AND THEIR MOTHERS BY NURSES AND CONSULTATION PHYSICIANS.

Dr. L. Emmett Holt recently stated the opinion that:

"Ignorance in feeding causes quite as many deaths as bad milk. Even the best milk, badly handled in the home and improperly fed, is capable of doing great harm."\* "By far the most effective agency is instruction in connection with the distribution of milk through the milk depots. Here the mother or some other representative of the family must report daily and must bring the child at stated intervals for inspection. Slight derangements of digestion are quickly brought to notice and can be met by appropriate changes in the food. When the food furnished is suitable in character, proper in quantity, and sufficient only for the needs of twenty-four hours, there is not the chance of going wrong in regard to quantity and frequency as when the mother prepares the food herself. *Through such agencies as the milk depots I believe more can be accomplished than by any other plan yet devised.* An extension of this work would, in my judgment, do *more than any other means* proposed to reduce infant mortality in summer."\*

We had come to the same conclusion by unfortunate experience, and accordingly such consultations on the Nourishment and Care of Babies have been held weekly, since June 24, 1909: at North End Union five; at East Boston and at the Peabody

OUR EXPERIENCE

\*Journal American Medical Association, Feb. 26, 1910.

**SEE  
BABY'S  
BODY,  
NOT ITS  
CLOTHES**

House three each; at the Cambridgeport and Sun Court Stations two each; at the Charlestown, Roxbury, Lincoln House, South Bay and Central Stations one each. These are conducted by twenty physicians, who give their services without pay to the work. The Association wishes to place on record here its deep appreciation of their faithful services.

The babies are stripped, weighed by the nurse, and examined by the physician in charge. Uniform card records are kept of the child's weight and condition, and of the amounts, intervals of feedings and the percentages taken. To these meetings are brought not only babies who are taking milk furnished by the stations, but also breast-fed babies, whose mothers desire oversight in order to keep their babies well. When satisfactory gain is not shown, an effort is made to ascertain the cause of the defect, and if indicated a change in the formula is made. If the baby is not gaining properly, questioning often elicits a story of too frequent feeding or the feeding of improper substances, and suitable advice is given.

Since in certain districts a majority of the mothers speak little English, seven Italian-speaking physicians constitute the staff in the North End, while the three physicians serving at the West End speak Yiddish. At East Boston, also, one of the physicians speaks Italian.

**THREE  
KINDS OF  
CON-  
FERENCES**

Conferences are conducted in three different ways: (1) Sometimes the mothers are addressed collectively, some point of hygiene being taken up and illustrated, for instance, by a demonstration of the proper method of bathing a baby, the making of barley water, the home modification of milk, clothing suitable for an infant; (2) at other times the babies are examined, one by one, in an examining-room, separate from the waiting-room, and the advice is individualized; but usually, and best of all, (3) a baby is examined in the presence of a number of mothers and the advice is heard by all. In this way mistakes made are pointed out in a kindly way, and made to do duty as texts for the education of other mothers, while those who have done well receive approbation and are encouraged.

In the talks an attempt is made to give reasons, and illustrations are used which are likely to appeal to the common sense of the mothers. They are then encouraged to ask questions,

however simple, and it is in this way that some of the most valuable points are brought out and enforced. Regularity of feeding, bathing, clothing, fresh air — these are some of the topics dealt with. A talk would run somewhat as follows: "A large number of babies die every year in Boston from 'summer complaint.' Most of these babies could be saved if the mothers knew just how to feed and care for them. That is what we have come here for, to tell you how to care for your baby. Ask questions of the doctor, not of some neighbor. The doctor has studied babies for many years and his advice is safe to follow. That of the neighbor may not be.

"Do not dress your baby too warmly in the hot weather. Have the clothing thin, loose and light. Let the baby kick. Have the arms and legs free. That is the way babies get the exercise they need. If the chest is bound tightly the baby cannot breathe easily.

"Don't allow the napkins to remain on the baby after they are soiled. If you do they will make the skin red and sore.

"Every mother should try to give her baby the breast. It is better for the mother as well as better for the baby. Ten babies die on the bottle to every one on the breast. Even if you have enough for only two or three feedings, still give the breast and help out with the bottle. In feeding the baby have the baby in the right position. The nurse is showing you how to place the baby to be fed.

"Feed the baby regularly. If you do not, you will upset the child's stomach. How would you like to have your meals every hour? You would soon lose your appetite and detest food. It is easier to upset a baby's stomach than a grown person's. If the baby cries he may not be hungry—he may be thirsty. Give him water. He needs it. But give no milk except at the times ordered. If he doesn't take it all in twenty minutes take the bottle away. And don't use what is left in the bottle. Throw it away and use fresh milk next time. If the baby is asleep when the time comes to feed him, wake him to be fed.

"If the baby has green movements it is sick. Stop feeding and give water instead, and take it to the doctor. Don't wait because your neighbor tells you it is only the teeth. It probably isn't the teeth, but the food. Get advice from the doctor.

"Here is a baby that is vomiting. It is on the breast. The mother has no regular time for feeding but gives him the breast every time he cries. He cries all the time. He is a very fussy baby. He should be fed regularly every two hours. The mother is going to try regular feeding and let us know next week how the baby has improved.

"This baby is six months of age. He has a severe diarrhoea and is 'vomiting everything he eats.' He looks sick. His mother goes out to work and his older sister cares for him. The day before yesterday, she gave him a taste of ice cream from one of the little cones that the children buy. The baby liked it so well that he was given seven of them, which he ate, one after the other. That is why he is now sick. You should not give your young babies such things to eat. You should give them nothing but milk except by the advice of the doctor."

Sick babies are not treated at these conferences, but when such are found they are referred to the family physician, or if the parents are indigent, to the district physician or to a dispensary or hospital clinic. Our task is to *keep babies well* by encouragement of breast feeding, by instruction of the mothers in the rules of hygiene and by furnishing milk as elsewhere described. This object is promoted in a very effective way by a follow-up system of nurses' visits to the homes. The home modification of milk is explained and re-explained and the nurse sees that the mother does it properly. Our nurses are forbidden to visit houses in which patients are suffering from any contagious disease, and they do not visit sick babies. The Board of Health sends each station a copy of the daily list of contagious disease case reports. If, in spite of preventive work, a baby on our list becomes sick, it is referred to a physician or a dispensary. The Association's nurses act as intermediaries in securing a nurse from the Instructive District Nursing Association who shall visit the child in the home, under the direction of the physician in charge of the case; and they themselves abstain from caring for the sick child until notified by the district nurse that the baby has recovered. In this way duplication of effort is avoided and the closest coöperation is effected. A similar arrangement is in operation with the Cambridge Visiting Nurses Association.

OUR  
TASK:  
KEEP  
BABIES  
WELL!

CO-OPERA-  
TION  
WITH  
PHYSI-  
CIANS

We desire to refer to an experiment at the Charlestown High School, where thirty-eight girls of the junior and senior years are receiving instruction along these lines from the medical director and the physician in charge of the station. Application for admission to this class was made in every case by the parent.

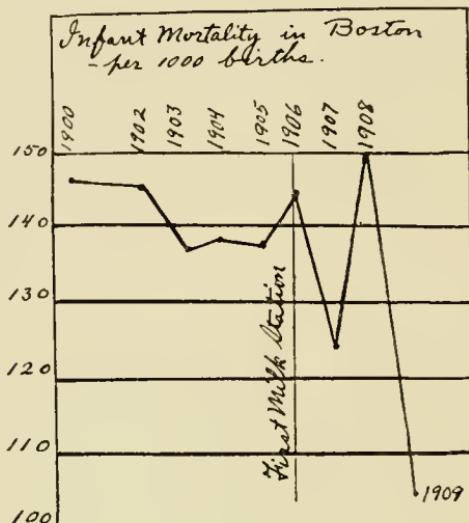
Many of the babies are sent to us by private physicians, or physicians on service at the various clinics, and where they continue their oversight of the case the work of the station is in these cases limited to the proper filling of the prescription and use of the milk, and to the enforcement of the general rules of hygiene. Prescription cards are furnished to physicians on application and all prescriptions must be renewed in one month at the latest; and if at any time the baby is not doing well it is at once referred back to the physician whose prescription it is taking. A semi-monthly report is made in any event on the form shown in appendix. We feel confident that by this procedure some cases of more or less serious disease have been prevented, by enabling physicians to deal with slight disorders in their incipiency.

The physicians who are doing this work are endeavoring to educate themselves further through an organization which they have formed under the presidency of Dr. Charles W. Townsend. The occasional meetings are addressed by an expert on a topic germane to the work in which they are mutually interested. One meeting was addressed by Mr. John Ritchie, of the Boston Board of Health, on the general subject of infant mortality, and on another occasion Dr. Milton J. Rosenau pointed out the way by which each physician at the stations could add his mite to the advancement of exact medical knowledge. Valuable recommendations have been made to and adopted by the Association as a result of these round-table conferences.

We come now to a consideration of the results of the endeavor. We say at the outset, however, that conclusions drawn from one year's effort, or even several years' effort, must be accepted with great reserve. We began these consultations June 24, 1909, and have had nurses in the stations but little longer than that. It is as easy to become too enthusiastic over apparent success as to become disheartened too easily over apparent

**INFANT  
MORTAL-  
ITY DE-  
CREASING**

failure, and there is danger of attributing to our exertions results which may flow from altogether different sources, such as the influence of weather conditions and other causes. Particularly is care to be exercised in comparing the statistics of one year with those of another. Reference is made more particularly to the comparison of the figures for 1909 with those for 1908, because the number of deaths of infants under one year of age in Boston suddenly rose in 1908 to a point higher than had been reached for several years previously.



DEATHS OF INFANTS UNDER ONE YEAR OF AGE IN BOSTON, MASS., BY WEEKS																			
	June			July			August			September			Total						
1908,	36	40	42	27	36	54	57	88	76	75	87	109	94	84	78	74	71	60	1,188
1909,	26	26	29	36	21	26	38	37	62	59	70	83	81	56	66	61	50	44	871
Reduction in 1909,													317						

But making all due allowances, eliminating all known factors of error, and after having given much time to the collection of statistics and much care to the consideration of them, we do not hesitate to say — indeed, we feel that we are very conservative in saying — that we have done much good and that we have had our share, a not unimportant share, together with

other agencies, in the marked diminution of the infantile mortality of Boston.

A chief source of our success, it seems to us, has been that in the conferences and in the homes, our physicians and nurses have emphasized, first of all, the value of *breast milk* for the human infant and have exercised the greatest precautions to keep babies on the breast. The Boston Provident Association has in several instances furnished pensions for women who would otherwise have been forced by poverty to deprive their babies of an abundant supply of breast milk. We are glad of this opportunity to express in this public way our appreciation of its generous, wise and prompt assistance.

One of the results of which we are most proud is that of 804 babies which have been under our supervision, 80 who came to us on a mixed breast and cow's milk diet were put on exclusive breast feeding with notable improvement.

The influence which our efforts must necessarily have is well shown by the following chart.\*

80 OR  
10% RE-  
TURNED  
TO  
BREAST

#### DEATHS DURING FIRST YEAR BY MONTH OF AGE.

1st	25.2%
2d	11.2%
3d	10.4%
4th	8.7%
5th	7.7%
6th	6.9%
7th	6.3%
8th	5.7%
9th	5.2%
10th	4.7%
11th	4.2%
12th	3.8%

This chart shows in a striking manner the overwhelming importance to the infant of a proper supply of its own natural food, particularly during the first weeks of its life. To

IMPROV-  
ING THE  
MOTHER'S  
MILK

\*Pfaundler and Schlossmann: Diseases of Children; American Translation, i, 294. Figures for the city of Berlin from 1893 to 1897, showing that nearly half of the deaths of the first year occur during the first three months and that over half of these occur during the first month of life.

this importance the physicians at the stations are thoroughly alive, and in two stations the attempt to improve the breast milk by means of regulation of intervals of nursing, and by attention to the mother's diet, exercise and hygiene has already shown most gratifying results. Our thanks are due to Prof. James O. Jordan, who has placed at our disposal the facilities of the Board of Health Milk Laboratory for the examination of milk in pursuance of this work.

The following table shows the total number of deaths, during the same period, of infants under one year of age in Boston, by wards, taking only those wards in which we have station service.

Ward	1908	1909	Difference
1	44	27	17
2	53	26	27
3	24	17	7
4	19	24	- 5
5	21	15	6
6	84	58	26
7	20	11	9
8	28	38	- 10
9	39	36	3
10	11	6	5
11	9	11	- 2
12	16	20	- 4
13	67	41	26
14	38	25	13

The following table enables a comparison to be made between the number of deaths of infants under one year, by wards, during the same period in 1909, and the number of deaths of babies under the care of the committee in the same wards. It will be noted that some of the stations operate in more than one ward, and that some wards are served partly by one and partly by another station.

Ward.	Infant Population.	Number of Deaths.	Per Cent of Deaths.	Number of Babies at Stations.	Number of Deaths.	Per Cent of Deaths.
1	677	27				
2	936	26	{	68	0	
3	386	17	{			
4	353	24	{	58	0	
5	284	15				
6	1,804	58		255	6	
7	432	11		24	3	
8	1,207	38		76	2	
9	764	36		159	0	
10	324	6		—	—	
11	360	11	{			
12	385	20	{	100	9	
13	683	41				
14	609	25				
Total,	9,196	355	3.8			
Cambridgeport,				64	0	
Total,				804	20	2.5

This table proves that within the districts served by our stations the death rate during the worst months of the year was nearly  $33\frac{1}{3}\%$  lower for the one-tenth of the babies who were under our care than for the nine-tenths who were not. Had we been able to reach all of these children, 118 lives might have been saved, and by the same ratio we should be able each year to conserve the life and health of 625 of the babies who are now needlessly dying.

We have had an interested group of mothers in regular attendance on the conferences, as the following will show.

33%  
LOWER  
DEATH  
RATE  
AMONG  
OUR  
BABIES  
THAN  
AMONG  
THEIR  
NEIGH-  
BORS'

**ATTEND-  
ANCE  
AT  
CONSUL-  
TATIONS**

Name of Station.	Number of Conferences.	Average Attendance.
Denison House .	18	13
Peabody House .	28	15
South Bay Union .	17	13
North End Union. . . . .	75	12
Roxbury Neighborhood House .	15	8
Cambridge Neighborhood House .	13	15
Sun Court (August-September). .	9	8
Old Armory, East Boston .	29	8
Charlestown High School .	11	16
Lincoln House . . . . .	14	7

Of our 804 babies, 20 have died since June 1, 1909, a death rate of  $2\frac{1}{2}$  per cent. During the same period the number of infant deaths in the city was 871, a percentage, computed on infant population, of 5 per cent, while the number of deaths in the wards reached by our stations was 355, a percentage, computed on ward infant population, of but 3 per cent.

We hesitate, however, to make such comparisons for the reasons we have already stated. The more important results of this work can be understood only from a knowledge of the methods under which it is conducted. They are to a certain extent incapable, as yet, of being reduced to figures, but are not on that account the less real. They are educational in scope and character, and like all educational efforts show results at a period more or less remote from the time of their inception. Immediate results we have seen, and in plenty, as has been demonstrated, but the larger results which we believe must follow can yet be seen only with the eye of faith.

#### A STAFF OF GRADUATE NURSES.

**THE  
NURSES'  
DAY**

At 7.45 each morning, rain, shine, holiday, Sunday, every nurse must be at her station to check the milk with the orders, and be ready to serve it quickly and accurately between eight and nine o'clock. In stations where there are more than sixty customers an assistant is provided. At nine o'clock the nurse prepares the order for the following day, making entry of changes of formula, of discontinuances and new applications. During

the rest of the day, until five o'clock, she is busy making her rounds among the babies in their homes and on errands of service to them and to their mothers. On the days when consultations are held in the station, she is present to weigh the babies and give the doctor the case histories for the week. Saturday is holiday after one o'clock. Sunday is free after milk distribution and emergency visits. Each nurse is given one month of vacation on full pay, each year; when sick she is governed by regulations similar to those for public school nurses.

The supervisor of the nurses, who is herself in charge of the Cambridgeport station, reports:

"The social side of the nurse's work is a very interesting one; and since the milk nurse as a rule reaches a different set of families from those reached by any other group of nurses, she has many opportunities for giving assistance outside of the immediate duty of advising as to the baby's food and care. Of course, she frequently discovers cases of illness in other members of the family and sees that due attention is given them, referring them to the family physician, the dispensary or the hospital, as the case may be. When the babies themselves are sick and there is no member of the family to take them to the hospital, the nurse goes with them herself, thus insuring prompt attention and a first hand knowledge of what is found necessary to do. In one case, where the baby had been taking the milk only a short time, the nurse heard early one morning that he was sick. She went directly to the house and found that the baby was really very sick, as the result of having been given some plums to eat. The mother was unwilling to take it to the hospital; so she hunted up the father, had him excused from work that he might come home and persuade his wife to send the child to the hospital. She promised to do so, but, after he and the nurse had left, she changed her mind. The child died.

"Sometimes the nurse sends the baby to a convalescent home so that it may have a better chance during the hot months, and in several cases she has persuaded the family to move out of the city for the sake of health of the children. One woman left her bed four days after childbirth and became paralyzed. The nurse secured her admission to a hospital and found some cousins who took charge of the baby in the mother's absence. Sometimes a

wet nurse is obtained for the baby. If the husband is out of work, drinks or ill treats his wife, the Associated Charities may be interested in the case and send a friendly visitor to give advice and sympathy, or provide money aid, as the case may be. In one family the nurse found the eldest boy, aged eight, out of school on account of his teeth. Upon her advice, he was taken to the Harvard Dental School Clinic, where the teeth were put in order, a cyst removed, and an operation for adenoids advised. The mother is now eager to have the teeth of all the other children put in good order. Indeed, the milk nurses have a great opportunity for interesting the mothers in the care of the first teeth and so insuring a better second set.

"The nurse told a family that their house was not in a safe condition, that the walls would fall if something was not done, and she saw to it that repairs were made. Sometimes sanitary arrangements are found to be bad, in which case a complaint is made to the Board of Health. Cases of tuberculosis are also reported. There are not many problems about which the nurse is not questioned, first or last, during her calls upon the mothers. She preaches fresh air with considerable success. She advises about clothing. She cites the ill feeding of the baby as a text for a short sermon on diet in general and the necessity of guarding the health in early life for the sake of a robust old age. Patent medicines and the free use of medicines that may be good in themselves are evils she has to fight, and in many cases little effect seems to be produced. Still, upon the whole, the mothers are ready to be taught and are anxious to know the best way to bring up the baby.

"Ten months ago a woman who was about to be confined for the thirteenth time sought advice at the Cambridgeport station consultation. All of the previous children had had rickets, four had died, the twelfth had not learned to walk till it was two and one-half years old, and the eleventh till it was three and one-half. The woman took milk from the station for herself, followed the simple hygiene and diet advice that was given, and nursed the baby without difficulty, but says she doesn't understand just why it has grown so fast, already walks and hasn't the rickets like the others."

Proof of the need of work in the Association's unique field is found in requests which are typified in the following letters from experienced social workers, and by Table I. in the appendix, showing the number of babies who are and who have been in our care, divided according to the way they are fed:

*Dear Miss:* One of my volunteers will pay for the baby's milk for a week, at least. Will you let me know at the end of that time how things are in the family? I want the father to go to the Burroughs Place Dispensary for examination for tuberculosis, as I feel sure he needs care. I want to ask your advice about another family, a Mrs. —— of —— St. The man is a hard drinker, the woman (much younger) is, as she says herself, "not very smart." The baby is about two months old, I think, and does not seem to thrive on the mother's milk, probably because she is too ignorant to know how to care for herself. Would a mother and baby like that come under your care and have you a doctor who examines the children to see what the trouble really is? This child, according to the mother, seems to have a perpetual colic, and it seems as if it would need some kind of care. And will you let me know how the little Italian baby at Third Street is getting on and whether it still seems necessary to have it go to the hospital?

Thank you very much for your help. These babies make me feel so perfectly helpless, myself.

Sincerely, \_\_\_\_\_

*My dear Miss:* Mrs. —— of 222 —— St., South Boston, has been obliged to wean her six months old baby and the food she is giving it does not agree with it, and she cannot seem to give it the proper thing. She is anxious to learn about feeding it, so I told her I would ask you to send a nurse. If you prefer that she would come to you, she can.

Her little girl Mary is one of our patients, so I know the family very well, and find Mrs. —— an intelligent woman, who carefully follows directions and is glad of advice.

Very sincerely,

*Social Service Secretary,  
Carney Hospital.*

Nurses need in our work not only the best of training and experience with babies but also such instruction in tact and method as is excellently imparted by the Instructive District Nursing Association. We have been greatly benefited by its coöperation in providing nurses, and our experience with nurses who have and who have not had such training compels a strong prejudice in favor of its graduates. But the social service value of our nursing staff is so great that some special training for it is also of importance. Our need in this respect is common with that of various other visiting nurse staffs. Realizing it, we proposed to the School for Social Workers that a short Extension Course for persons already employed in such work as ours and that of the Instructive District Nursing Association be established. After several conferences it was arranged and is now

NURSES'  
TRAINING

SPECIAL  
SOCIAL  
SERVICE  
COURSE

being carried out with evident satisfaction to the fifty who enrolled. The attendance of the paid staff is required, but the Association grants the hour and one-half per week and pays the costs.

#### EDUCATIONAL WORK.

PRINTED  
MATTER

The educational work done by the nurses and by the consultation physicians has been described in detail. In order to assist the nurses in teaching and to reach many mothers who never come to us, the Association prepared illustrated posters in English, Yiddish and Italian. 7,500 of them were distributed by the nurses, by settlement workers and the Women's Municipal League.

NEWS  
ARTICLES

The greater public has been reached by a series of twenty-nine special news articles sent to every paper in the metropolitan district. These were generally used and our scrap book shows that over fifty feet of news columns of this material was published during the last nine months.

LECTURES

The Director assisted in the formation and instruction of the Wareland's Dairy Class, which offers an opportunity for mature students to study the methods of producing clean milk and its relation to the public health. He also lectured in Amesbury, Winchendon, New Haven and before the Consumptives Hospital Nurses, and the Tuckerman School in Boston. The Medical Director spoke at the New Haven Conference on Infant Mortality, before the New England Pediatric Society, The Boston Nurses' Club, the Posse Gymnasium and in Attleboro, in addition to his regular course at Charlestown High School. Associations modeled closely after our own and to which we have been glad to be of assistance have been formed in Lawrence and in Lowell.

PUBLIC  
MEETINGS

The Association held an important public meeting in Faneuil Hall, in May, and is arranging for a Conference on the milk situation at the Twentieth Century Club on March 22. This meeting is already assured of success, because it will assemble a group of people who have not hitherto come into close contact — producers, farmers, contractors, health officers, medical and social agents for improvement of the supply, consumers, legislators, agricultural experts, dairy economists and professors of preventive medicine.

The Association was invited to make an exhibit at the New Haven Conference, and presented a unique series of photographs illustrating the course of our milk from pasture, milking, cooling, shipping, laboratory, station distribution and consultations to the baby. The special covered pail designed by one of the farmers who furnish our milk, the special wide-neck feeding bottles, shipping cases and boxes were shown as models of convenient, economical units developed after careful study and experience. Charts showing the need and results of the Association's work and tracing the method of its routine and administration completed a display which proved of great advantage to many persons planning similar work elsewhere. After this conference the material was moved to the Boston 1915 Exhibit, where it attracted wide attention. The petrie dishes, which showed the growth of colonies of bacteria from ordinary, good and certified milk, and the microscope showing the bacteria of typhoid, dysentery, and so on, were of value in demonstrating to visitors the reality and individual character of germs. This general exhibit was interestingly explained by Mr. E. A. Andrews, and the bacteriological section by Mr. Salmonde of the Institute Technology. Mr. Salmonde afterward gave an excellent demonstration to mothers attending the central station and their friends. The fathers were reached by evening smokers, conducted by Drs. Brindisi, Balboni, Bonelli and Lucas; the topics discussed included the importance to the infant of proper treatment and nourishment of the expectant mother, the care of the mother and hygienic surroundings.

FATHERS'  
MEETINGS

Prof. James O. Jordan coöperated generously and enthusiastically in the 1915 exhibit, furnishing a large amount of striking and convincing material on the character and value of the city milk inspection service. His budget exhibit showed that the city appropriates less than \$12,000 a year for the protection of its milk supply. Through the inspection service over \$4,000 in fines and license fees are collected, making less than .002 of a cent expenditure per quart for the milk used. Is it not worth considering whether a larger appropriation would enable this bureau to do much more to make safe the most important element in our food supply? Could not the infantile and the other death

rates of the city be materially lowered by increase of the appropriation for this bureau?

#### LIBRARY

For the use of physicians or others interested in the milk stations, consultations, and the prevention of infant mortality a short bibliography is given in the appendix. These books and others may be consulted in the Association library. Additions are solicited and we will be glad to exchange publications with similar organizations.

#### LEGISLATIVE WORK, 1910

It has become customary for private benevolent organizations to look after the popular or general interest in legislation — to act as the spokesman and the lobby for the public. This function in regard to milk legislation falls naturally to this Association. As this report goes to press it seems likely that all such legislation before the present session will be referred for study and recommendations to a State commission.<sup>1</sup> As there has been constant strife for years past over all these matters and there is now an impasse between the contending interests this seems to us the one way of adequately considering all phases and providing a solution which will command public confidence and stop the controversy. Accordingly, the Association is heartily supporting the measure.

#### OUR PROGRAM

It is prudent to inventory our health stock today, to examine every instrument, institution, group and individual in order to measure its efficiency in health work and to replace, if necessary, our worn-out tools. We cannot expect unfailing accuracy and thorough preparation at every point, but we should demand a system which will put a man's tasks before him in a clear light and give him the means to do them.

#### A HEALTH INVENTORY

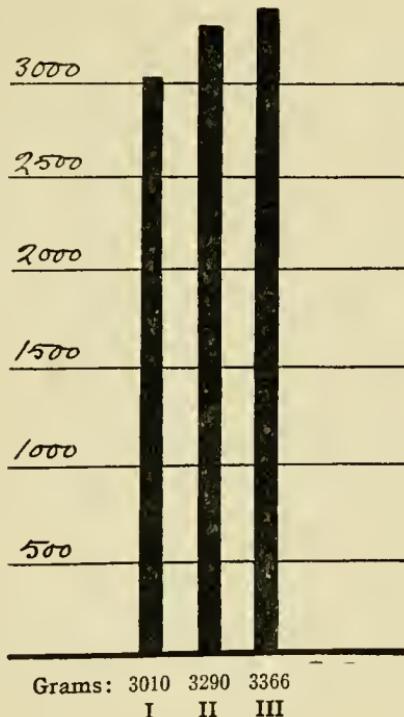
#### HEALTH THE CITY'S BEST ASSET

The scope of government action in regard to public health is fixed at present by the far-sightedness and courage of the commissioners and by the conditions of their budget. It ought, of course, to be limited only by the bounds of science and experience. Boston's death rate and morbidity for each disease should be the lowest of all cities of comparable size in the temperate zones. Failing this, as we do, we must, meantime, de-

mand a steady declination of the death rate and of morbidity, and frame a comprehensive plan of action. What is this Association's program, to be undertaken, step by step, as rapidly as means can be secured?

It wishes to carry on its stations as models until a public department takes them over, and to increase their number until the field is covered. Lack of funds alone prevents it from opening one station near Roxbury Crossing, in response to a petition from 260 mothers for a station and nurse there, and another in South Boston where the mortality of babies is especially high.

We have recently extended the service of our modified milk in pint bottles by delivering it *upon physician's prescription* to any section of the city at six cents a pint. We need funds for



**Average weight at birth:**

- I. Of 500 children whose mothers worked up to the day of confinement.
- II. Of 500 children whose mothers spent ten days before confinement in a pre-maternity home.
- III. Of 500 children whose mothers spent more than ten days in a pre-maternity home.

This cut and those on pages 3 and 4 used by courtesy of *The Survey*.

**STILL-BIRTHS**

a nurse-at-large to visit these purchasers when the physicians believe that a trained nurse could aid the mother.

We regard the annual loss by still births of 704 babies as a disgrace to an enlightened community. We wish to organize popular instruction in the Hygiene of Pregnancy. We believe there should be public regulations preventing the employment of women in industry within a month previous or subsequent to childbirth.

**MILK AND DAIRY EXHIBIT**

We believe that there should be an adequate demonstration in Boston by means of a milk exhibit of what constitutes good milk; how it is produced; the respective duties of the producer, dealer, health officials and the consumer; effect of cattle diseases on milk; detection and cure of such diseases; breeding, selection and feeding of dairy cows; milk in the city — how it should be handled and cared for. Such a show should include a certified and inspected milk exhibit; a milk laboratory; dairy equipment; market milk and dairy awards and graphic illustration of care *versus* equipment in production of satisfactory milk. The Dairy Division of the United States Department of Agriculture has recently assisted Cincinnati, Pittsburg and other cities to hold such shows. Local health authorities and dealers have already offered to take part, and the Association invites all concerned to communicate and help organize such an affair.

**CITY NURSES FOR BABIES**

We believe the Board of Health should take up educational work for the encouragement of breast feeding, and that for this purpose, as well as to teach the first lessons in hygiene, should send nurses, as New York, Providence and other cities are doing, to visit babies when the physician registering their birth reports such a visit to be needed.

We wish to study the reasons for and to combat the decrease in the consumption of fresh milk.

We wish to teach proper home care of milk.

We believe that an investigation should be made into why thirty-five per cent\* of all the city's infant deaths occur in institutions. All of Boston's lavish supply of hospitals and asylums for children may be beneficial. Possibly the eight hundred odd deaths in them could not be prevented by either

**HOME CARE**  
**35% OF INFANT MORTALITY IN PLACES ORGANIZED TO PREVENT IT<sup>1</sup>**

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\*The Infantile Mortality of Boston, June 1 to Nov. 30, 1907. Donald Gregg, M.D.; p. 11.

better institutional or better home care. But there is strong evidence to the contrary in the fact that in some instances a large proportion of these children were born in the institutions, and a larger proportion received care there for upwards of a month.

Two-thirds of all children survive the Kindergarten age. Those who enter Kindergartens are fed milk for luncheon. By whom is it purchased? Is the method to get it from the cheapest provider — as was the custom until recently at the City Hospital? If the answer is, "It is presumably examined and protected in the regular course of public inspection," we must show that this is not enough. It is no criticism of the inspection service to say that contaminations which in ordinary milk would not affect the adult are frequently fatal to these young bodies.

#### MILK INSPECTORS

Repeated testimony is given concerning the objectionable and ineffective character of the dairy inspection service — particularly of its unevenness in different parts of the State. Inspectors are now appointed by the State Board of Health for the State service, and by the local boards of health for local service. Some of the latter are unpaid and others are engaged or interested in the milk business — both wrong conditions. None is under civil service; all of them should be, in order that the community may be assured of their fitness in the technique of such service. Inspectors have too often been punitive agents; they should become earnest, patient teachers.

The Association proposes to prepare a brief on the selection of inspectors, sample questions and a basis of marking, and will urge the advertisement in agricultural papers and at agricultural colleges of all vacancies, with their requirements and prospects. It will coöperate with the State Board of Health, Department of Agriculture, Department of Education and other bodies to improve the standards of all our cities and towns in those respects.

#### MIDWIVES

A large number of our babies are brought into the world by the assistance of midwives, many of whom, ignorant of hygiene

and prophylaxis, bolster their crude physical aid with superstition and mischievous tradition. The band of black tied about the left wrist of these babies and the ten yards of swaddling bands with which their bodies are bound as foundation for many other garments, frequently prove insufficient safeguards against the "evil spirits." Many of these babies soon die; others go to the Floating Hospital or call on the physicians at our Consultations. The mother's education and the baby's salvation begin then. But preventive work for the sake of many mothers and their babies demands that a friendly and vigorous work be established among midwives, who are the first instructors in the care and feeding of an uncertain per cent of our babies.

Last, and perhaps most important of all, we present the following letter, with an appeal for immediate provision, outside of the regular income, of the \$2,400 desired for three years:

Department of Preventive Medicine and Hygiene  
HARVARD MEDICAL SCHOOL

BOSTON, February 11, 1910.

MR. GEORGE H. ELLIS, *President,*  
Milk and Baby Hygiene Association,  
64a Tyler Street, Boston, Mass.

*Dear Mr. Ellis:* I believe that the work of the Milk and Baby Hygiene Association could be advanced and broadened by scientific research into some fundamental problems connected with milk and its relation to health and disease. If such work could be directed along lines that would promise practical results it would be of great use, not only to your committee, but to all similar agencies elsewhere. If the committee desires to foster an advance in our knowledge along these lines, I would be glad to offer the splendid facilities of my laboratories at the Harvard Medical School, and I would consider the privilege of tendering my services sufficient compensation to encourage and promote such work. It would require an investigator who has proficiency in experimental methods. I believe such a man could be obtained for \$2,400 a year, with an assurance of three years' engagement. Little could be accomplished in less time.

We are still groping in the dark with many questions concerning milk and its relation to the public health. There is the problem of the character and significance of the so-called "pus-cell" in milk, and the streptococci. The differences in opinion concerning the effect of heat upon milk, and the consequences to the baby of pasteurizing milk will never be settled by discussion, but by experimental observation. Most of the babies in the Milk and Baby Hygiene Association's stations come there on account of "summer complaint," or diarrhoea. The work for them is now based, in part, on the common assumption that this is largely due to the number of bacteria present in ordinary market milk. This assumption has been challenged. If it is false the Association is largely wasting its energies. Such a question cannot be settled by argument, and to leave it in uncertainty is unfair to the mothers who place their babies under the care of the Association with entire confidence. A scientific research should establish the basic facts for the benefit of all.

Many other problems, such as the spread of typhoid fever and dysentery in milk, the effects upon the baby's digestion of the freezing of milk, the correct methods of handling milk from the farm to the consumer, etc., could be materially advanced by careful observations along the trail of the milk you provide, at your stations and in the laboratory. I trust you will give this matter your careful consideration, and hope the Association can undertake it without, of course, interfering with the established work.

Very truly yours,

(Signed)      MILTON J. ROSENAU.

# REPORT OF THE TREASURER

ARTHUR H. BROOKS, *Treasurer*, in account with the COMMITTEE ON MILK  
AND BABY HYGIENE

May 1, 1909, to Feb. 28, 1910.

	<i>Dr.</i>		
To Contributions . . . . .			\$9,575.93
Collection from Sale of Literature, etc. . . . .			415.17
Total . . . . .			<u>\$9,991.10</u>
		<i>Cr.</i>	
By Salaries and Wages . . . . .		\$2,696.60	OFFICE \$3,929.61
Lecture Fees and Expenses . . . . .		141.53	
Rent . . . . .		57.25	
Postage, Telephone and Telegraph . . . . .		401.93	41.41
Transportation . . . . .		25.23	52.33
Equipment and Supplies. . . . .		297.56	1,679.91
Printing (Administrative) . . . . .		144.12	36.45
Printing (Educational) . . . . .		129.00	
Exhibit . . . . .		169.47	
Milk . . . . .		34.80	
Miscellaneous . . . . .		153.90	
		<u>\$4,216.59</u>	<u>\$5,774.51</u>
Total . . . . .			<u>\$9,991.10</u>

March 16, 1910.

## CERTIFICATE

I have examined the disbursements of the Committee on Milk and Baby Hygiene, from June 30, 1909, to and including February 28, 1910.

Vouchers and canceled checks have been seen by me which I am satisfied are proper vouchers for the expenditures made.

(Signed) WM. C. NEWELL,  
*Public Accountant.*

The receipts as deposited in Bank amount to . . . . .	\$9,619.16
Interest on deposits . . . . .	31.46
Total . . . . .	\$9,650.62
Disbursed . . . . .	9,991.10
Overdraft . . . . .	340.48
Checks out as per list . . . . .	\$731.27
Balance in Bank . . . . .	390.79
Overdraft . . . . .	<u>\$340.48</u>

## MILK ACCOUNT

May 1, 1909, to March 1, 1910.

Amounts collected and paid out for modified milk, inspected and certified milk and bottles at each station.

North End Union . . . . .	\$3,681.25
Elizabeth Peabody House . . . . .	1,647.66
Denison House . . . . .	1,359.90
South Bay Union . . . . .	776.18
Roxbury Neighborhood House . . . . .	821.21
Cambridgeport Neighborhood House . . . . .	378.67
Old Armory, East Boston . . . . .	1,672.25
Charlestown High School . . . . .	521.21
Lincoln Neighborhood House. . . . .	962.50
4 Sun Court Street, North Square. . . . .	627.34
	<u>\$12,448.17</u>

# MILK AND BABY HYGIENE ASSOCIATION

Incorporated March, 1909

## COUNCIL, OFFICERS AND \*EXECUTIVE COMMITTEE

*JOHN D. ADAMS	*DR. RALPH C. LARRABEE
DR. JOHN W. BARTOL	DR. JOHN LOVETT MORSE
*DR. HENRY I. BOWDITCH	GEORGE S. MUMFORD
*ARTHUR H. BROOKS, <i>Treasurer</i>	MISS MARY BOYLE O'REILLY
MISS MARY H. BURGESS	WILLIAM H. PEAR
DR. HERBERT L. BURRELL	DR. CHARLES P. PUTNAM
*DR. WALTER B. CANNON, <i>Secretary</i>	MRS. WILLIAM LOWELL PUTNAM
*MRS. E. A. CODMAN	DR. MILTON J. ROSENAU, <i>Vice-President</i>
MISS HELENA S. DUDLEY	SEYMOUR H. STONE
DR. SAMUEL H. DURGIN	DR. CHARLES W. TOWNSEND
*GEORGE H. ELLIS, <i>President</i>	MRS. CHARLOTTE BARRELL WARE, <i>Vice-President</i>
*MRS. HENRY COPLEY GREENE	MISS CORNELIA WARREN
*SAMUEL F. HUBBARD	EDWARD WARREN
MRS. JOHN G. JACK	*MRS. EVA W. WHITE
PROF. JAMES O. JORDAN	*MRS. CHARLES F. WHITINO
*MRS. MARY MORTON KEHEW	ROBERT A. WOODS
HORATIO A. LAMB, <i>Vice-President</i>	

## STAFF

WALTER E. KRUESI, <i>Director</i>
MISS ANNETH FISKE, <i>Supervising Nurse</i>
MISS HORTENSE WALES, <i>Stenographer</i>

## NURSES

MISS GENEVIEVE SENNA, <i>North End Union</i>
MISS ADA S. CREELMAN, <i>East Boston</i>
MISS ADA STAFFORD, <i>Lincoln House</i>
MISS LENAH B. AUSTIN, <i>Denison House</i>
MISS LOUISE LOVEJOY, <i>St. John's School</i>
MISS MABEL ALBRO, <i>Charlestown</i>
MISS MARY SCHUMACHER, <i>North End Union</i>

## CO-OPERATING SETTLEMENT NURSES

MISS ELEANOR STEWART, <i>Peabody House</i>
MISS SYBELLA HAVILAND, <i>Roxbury</i>
MISS MARY L. STRONG, <i>South Bay Union</i>

S. A. FARWELL, <i>Chemist</i>
S. G. BIXBY, <i>Bacteriologist</i>
W. A. SAMPSON, <i>Head of Milk Laboratory</i>
MISS EDWINA FENOCHIETTI, <i>Clerk, North End Union</i>
MISS GERTRUDE SAWYER, <i>Clerk, Peabody House</i>
MRS. SULLIVAN, <i>Clerk, Lincoln House</i>
MRS. ROSA HAZEL, <i>Clerk, Cambridge</i>

VOLUNTEER CONSULTATION PHYSICIANS
GERARDO M. BALBONI, <i>North End Union, Monday, 3.30 p.m.</i>
JOSEPH A. BIANCO, <i>North End Union, Thursday, 3.30 p.m.</i>
R. P. BONELLI, <i>East Boston, Wednesday, 3 p.m.</i>
ROLAND W. BRAYTON, <i>Roxbury, Thursday, 3.45 p.m.</i>
ROCCO BRINDISI, <i>North End Union, Wednesday, 3 p.m.</i>
ELIZA A. DADMUN, <i>Charlestown, Wednesday, 3.30 p.m.</i>
ANTONIO DE ROBERTIS, <i>North End Union, Friday, 3.30 p.m.</i>
WILLIAM R. P. EMERSON, <i>Denison House, Wednesday, 3.30 p.m.</i>
HARRY FINKELSTEIN, <i>North End Union, Tuesday, 3.30 p.m.</i>
EDWARD J. GRAINGER, <i>East Boston, Tuesday, 3.30 p.m.</i>
LAURA A. C. HUGHES.
WILLIAM D. KELLY, <i>Peabody House, Thursday, 1.30 p.m.</i>
NATHAN N. LEVINE, <i>Peabody House, Wednesday, 4 p.m.</i>
T. F. McCARTHY, <i>East Boston, Thursday, 3.30 p.m.</i>
VERNON H. C. MORSE, <i>Cambridge, Friday, 3.30 p.m.</i>
GAETANO PRAINO, <i>St. John's School, Friday, 3.30 p.m.</i>
E. E. SANGER, <i>South Bay Union, Thursday, 10.30 a.m.</i>
MAX STURNICK, <i>Peabody House, Tuesday, 3.30 p.m.</i>
CHARLES WILLIAMS, <i>Lincoln House, Saturday, 10 a.m.</i>
J. HERBERT YOUNG, <i>St. John's School, Wednesday, 3.30 p.m.</i>



## SUMMARY OF THE WORK OF THE ASSOCIATION

1. We have been instrumental in reducing the death rate among babies from 2,468 in 1906 to 2,124 in 1909. The death rate among the 4.2% of all Boston babies who came under our care was in 1909 one-third lower than for the rest, although practically all the rest live under better conditions.
2. We persuade as many mothers as possible to nurse their children, and help them to be able to do so, because we find in our own experience that such babies have a death rate of 1.9% as compared with 4.68% for those who are but partially breast fed, and with 9.55% for those fed on carefully modified milk.
3. We maintain ten people's milk stations in charge of seven graduate nurses (three additional nurses are supplied by co-operating settlements), and have organized conferences with twenty volunteer physicians to instruct mothers in the care and nourishment of their children. At the stations, Modified, Inspected, and Certified milk, infants' sanitary feeding bottles and nipples are sold at cost.
4. We conduct a class for High School girls, and lectures to fathers and other groups. We distribute simple tracts on the care of children, and by the use of special phonograph cylinders and graphic exhibit materials extend an educational influence.
5. We take an active part in propaganda for the improvement of the general milk supply and the method of handling it in the city. We cooperate with the public health authorities and take part in hearings before the legislature.
6. We assist in the formation of similar societies elsewhere.



# MOTHERS WITH LITTLE BABIES

READ THIS AND DO JUST AS IT SAYS  
FOR THE SAKE OF YOUR BABY'S HEALTH

THE Committee on Milk and Baby Hygiene has prepared the following rules for mothers with little babies. If they are followed carefully, many of the 2,300 babies who usually die in Boston during the summer can be saved.

**THE BEST FOOD IS MOTHER'S MILK.**—Nurse your baby for the first twelve months. If you do, its chances for life and health will be ten times greater than the chances of a bottle-fed baby. Never wean a baby less than a year old except at the doctor's advice. Do not wean baby in hot weather.

**NURSE YOUR BABY AT REGULAR TIMES**—but never more than once in two hours. Baby should sleep six hours or more each night without interruption. Wake baby promptly if asleep when the regular time for nursing comes. Give baby all the cool boiled water it wants. Baby may cry because you feed it too often and too much; because it wants water; because it aches from too much handling; because it is too hot—flannel shirts in summer bring prickly heat.



**MILK.**—If you think you cannot nurse your baby enough, or at all, consult a doctor before making any change. The question is too serious for you to decide by yourself. Buy good, clean milk and prepare it just as the doctor directs or get it already prepared from the milk stations. Keep the milk cold, covered and clean. Put it in clean bottles. Never use a feeding bottle with a tube on it. Never give baby cheap, dirty milk, or coffee, beer, syrups or solid food.

**CLOTHING.**—In hot weather one thin piece is enough. Baby feels heat more than you. Keep baby cool—it will not catch cold.

**BATHING.**—Wash baby all over every morning. In hot weather sponge it often with cool water.



**FRESH AIR.**—Keep the windows open day and night. In summer sleep on the roof or in the yard with baby, if you can. Baby should sleep alone and in the coolest, quietest room. Keep baby out of the kitchen. Keep flies out of the house and protect baby from them. Go to the parks as often as you can, even for a few moments.



**WHEN YOU CANNOT NURSE YOUR BABY,** and you want to keep it well, bring it to us, and our doctors and nurses will tell you what to do.

**IF BABY IS SICK, VOMITS OR HAS DIARRHEA,** stop feeding altogether, give it water instead, and take it to your doctor or to some children's hospital or dispensary.



## WHERE TO GET THE MODIFIED MILK

NORTH END UNION,  
ELIZABETH PEABODY HOUSE,  
BENISON HOUSE,  
SOUTH BAY UNION,  
LINCOLN HOUSE,  
ROXBURY NEIGHBORHOOD HOUSE,  
CAMBRIDGE NEIGHBORHOOD HOUSE,  
WOODBURY'S DRUG STORE,  
DOWNEY'S DRUG STORE,  
20 Parmenter St., Boston.  
87 Poplar St., Boston.  
93 Tyler St., Boston.  
640 Harrison Ave., Boston.  
70 Emerald St., Boston.  
858 Albany St., Roxbury.  
79 Moore St., Cambridgeport.  
Maverick Square, East Boston.  
Thompson Square, Charlestown.



**HOW TO GET PURE MILK.**—Take the baby to one of the above stations or to any doctor in Boston. He will examine it and write a prescription for the kind of milk suitable for your particular baby.

PRICE. 2 oz., 1c.; 3 oz., 1½c.; 4 oz., 2c.; 5 oz., 2c.; 6 and 8 oz., 2½c.; 10 oz., (1 pint), 4½c., all formulae.  
DEPOSIT of two cents on each bottle required.

**WHOLE MILK** of very high grade is sold at eight cents a quart for the benefit of pregnant women, nursing mothers, older children and for mothers who wish to modify milk at home for their babies.